

WHAT IS CLAIMED IS:

1. A fuel cell system comprising:

a fuel cell having an anode space and a cathode space,
which are separated from one another by a proton-conducting
membrane;

a cathode feed line for feeding oxygen-containing gas
to the cathode space;

a cathode exhaust-gas line;

an anode line for feeding and discharging an operating
medium to the anode-space inlet and from the anode-space outlet;

a device for determining a temperature; and

a device for metering and feeding operating medium to
the cathode space as a function of the determined temperature.

2. The fuel cell system according to Claim 1, wherein the
device for metering and feeding operating medium is connected to
the cathode feed line, to introduce operating medium into the
cathode feed line.

3. The fuel cell system according to Claim 1, wherein the device for metering and feeding operating medium is connected between the anode line and one of the cathode feed line and the cathode space, to introduce operating medium from the anode line therein.

4. The fuel cell system according to Claim 1, wherein the device for metering and feeding operating medium is connected directly to the cathode space, to introduce operating medium into the cathode space.

5. The fuel cell system according to Claim 1, further comprising a device for comparing the determined temperature with a predetermined temperature threshold; wherein the device for metering and feeding the operating medium is actuatable if the determined temperature falls below the temperature threshold .

6. The fuel cell system according to Claim 1, wherein the device for determining the temperature comprises a sensor for recording one of the ambient temperature and the temperature in the interior of the anode line.

7. The fuel cell system according to Claim 1, wherein the device for determining the temperature comprises a sensor for recording the temperature of one of the cathode space, the

interior of the cathode feed line and the interior of the cathode discharge line.

8. A method for operating a fuel cell system having a fuel cell with an anode space and a cathode space that are separated from one another by a proton-conducting membrane, the cathode space being acted on by an oxygen-containing gas via a cathode feed line, and an operating medium being passed through the anode space by means of an anode line, said method comprising:

determining one of ambient temperature and temperature in an interior of one of the anode line, of the cathode space, the cathode feed line, or cathode exhaust-gas line; and

feeding operating medium in metered quantities to the cathode space as a function of the determined temperature.

9. The method according to Claim 8, wherein the operating medium is fed to the cathode space via the cathode feed line.

10. The method according to Claim 8, wherein operating medium is fed to the cathode space from the anode line.

11. The method according to Claim 8, wherein the operating medium is introduced directly into the cathode space.

12. The method according to Claim 8, further comprising:

comparing the determined temperature with a predetermined temperature threshold; and

if the determined temperature falls below the temperature threshold, feeding operating medium to the cathode space.

13. The method according to Claim 8, further comprising:

comparing the determined temperature with a predetermined temperature threshold; and

if the determined temperature falls below the temperature threshold, increasing the concentration of the operating medium fed to the cathode space is increased.

14. The method according to Claim 8, wherein the temperature is determined when the fuel cell system is switched off.